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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,331	03/06/2007	Vittorio Orlandi	J1036.0016/P016	5103
24998 7590 01/06/2010 DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403				
EXAMINER				
CULLER, JILL E				
ART UNIT		PAPER NUMBER		
2854				
MAIL DATE		DELIVERY MODE		
01/06/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,331

Applicant(s)

ORLANDI ET AL.

Examiner

Jill E. Culler

Art Unit

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 7, 21, 22, 28, and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,688,222 to Cattaruzza et al.

With respect to claims 1, 2, 4, 7, 21, 22, 28, and 31-33 Cattaruzza et al. teaches all that is claimed as follows: See column 3, lines 9-50 and Fig. 1.

With respect to claim 1, Cattaruzza et al. teaches equipment for printing on fabric, comprising a support, 2, driven such as to transport a sheet of fabric, at least one driven printing body, 11, in order to carry out the printing and a control and command unit operatively connected with each of said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turn said signals into numerical values representative of the status of their angular speed and torque moment, compare said numerical values with ratios of preset numerical values of said angular speed and said torque moments and send signals to said support and at least one printing body in order to correct any possible variations in said values which fall out with said ratios. See column 3, lines 9-50 and Fig. 1.

With respect to claim 4, Cattaruzza et al. teaches that said support is driven by means of a motor, 5, and wherein said at least one printing body is driven by a motor, 6, 7. See column 3, lines 9-50 and Fig. 1.

With respect to claim 4, Cattaruzza et al. teaches that said support is a cylindrical support represented by a press roller. See column 3, lines 9-50 and Fig. 1.

With respect to claim 7, Cattaruzza et al teaches that said at least one printing body comprises from two to twelve rotating engraved rollers operated individually and independently by motors. See column 3, lines 9-50 and Fig. 1.

With respect to claim 21, Cattaruzza et al. teaches a process for the printing of fabric comprising the steps of: providing a fabric sheet; providing an equipment for printing on fabric comprising a driven support, 2, for the transportation of said fabric and at least one driven printing body, 11; feeding said equipment with said fabric sheet; performing the printing on said fabric under the control and command of a control and command unit, wherein said control and command unit is operatively connected with said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turning said signals into numerical values representative of the status of their angular speed and torque moment, comparing said numerical values with ratios of preset numerical values of said angular speeds and said torque moments and sending signals to said support and at least one printing body in order to correct any possible variations of said values which fall out with said ratios. See column 3, lines 9-50 and Fig. 1.

With respect to claim 22, Cattaruzza et al. teaches that said control and command unit acts separately and independently on each motor which operates the corresponding rotating body of the equipment such as to make reference to the same electrical axis. See column 3, lines 9-50 and Fig. 1.

With respect to claim 28, Cattaruzza et al. teaches that the printing stage occurs by means of flexographic (ink) or serigraphic (colored paste) methods. See column 3, lines 9-50 and Fig. 1.

With respect to claim 32, Cattaruzza et al. teaches a fabric obtainable by means of the process according to claim 21. See column 3, lines 9-50 and Fig. 1.

With respect to claim 33, Cattaruzza et al. teaches the fabric can have multicolor text and/or drawings. See column 3, lines 9-50 and Fig. 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5-6, 8-9, 15-16, 24-26 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,427,586 to Takahashi

With respect to claim 3, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except that said driven support is provided with through holes which

cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support.

Takahashi teaches a printer having a driven support provided with through holes which cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to include holes in the support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 5-6, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except that said support is a press belt, which is a perforated belt closed on itself.

Takahashi teaches a printer having a driven support which is a press belt, which is a perforated belt closed on itself. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to have a perforated press belt for support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 8-9, Takahashi teaches said holding means comprise suction fans having the function of sucking air from the outside of the support towards its inside through said through holes, wherein said suction fans are represented by fans. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

With respect to claims 15-16, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except for guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors.

Takahashi teaches a printer having guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to have guide means, as taught by Takahashi, in order to better move the fabric through the printer.

With respect to claims 24-26, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except for an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-woven-fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit.

Takahashi teaches a printer having an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-woven-

fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cattaruzza et al. to have the operation and control, as taught by Takahashi, in order to better transport the fabric through the printer.

With respect to claim 34, Cattaruzza et al. teaches equipment for printing on non-woven-fabric, comprising a driven support so as to transport a sheet of non-woven-fabric, at least one driven printing body for implementing the printing and driven holding means which interact with said support in order to hold said sheet onto said support, wherein both angular speed and torque moment of said support and said printing body are controlled in order to correct variations thereof that fall outside of predetermined numerical values.

Cattaruzza et al. does not teach the driven support is provided with through holes.

Takahashi teaches a printer having a driven support that is provided with through holes. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cattaruzza et al. to have the support through holes, as taught by Takahashi, in order to better move the fabric through the printer.

Claims 10-14 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Takahashi as applied to claims 3, 5-6, 8-9, 15-16, 24-26 and 34 above, and further in view of U.S. Patent No. 5,881,440 to Deeming et al.

Cattaruzza et al. and Takahashi teach all that is claimed, as in the above rejection, except that said suction fans are represented by pumps of the compressor or vacuum pump type, wherein said suction fans are connected to a water separator in the form of a condenser or a distillatory that separates the water from the air by mechanical and physical action.

Deeming et al. teaches that in the manufacture of non-woven fabric it is desirable to transport the fabric on a belt through which the water can be separated by a vacuum. See column 2, lines 45-56.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include well known apparatus for water separation, as taught by Deeming et al., in order to be able to make the fabric more suitable for the printing process.

Claims 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. and Takahashi as applied to claims 3, 5-6, 8-9, 15-16, 24-26 and 34 above, and further in view of U.S. Patent No. 5,312,500 to Kurihara et al.

Cattaruzza et al. and Takahashi teach all that is claimed, as in the above rejection, except wherein at least one pair, of said guide means are positioned at the ingoing non-woven-fabric into the printing stations and consist of widening means which

allow increasing the height of the non-woven-fabric, comprising a widening stage in order to ensure the maintenance of the product height.

Kurihara et al. teaches that widening is a desirable function when working with a non-woven fabric. See column 14, lines 8-16.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include structure for widening, as taught by Kurihara et al. in order to improve the quality of the non-woven fabric.

Claims 18-20, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of U.S. Patent No. 6,024,018 to Darel et al.

With respect to claims 18-20 and 23, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except for an image acquiring device, such as a digital camera or video camera, used to implement closed loop automatic control.

Darel et al. teaches a printer having an image acquiring device, such as a digital camera or video camera, used to implement closed loop automatic control. See column 5, lines 19-44 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to include digital video control, as taught by Darel et al. in order to maintain the process settings at optimum levels.

With respect to claim 29, Cattaruzza et al. teaches all that is claimed, as in the above rejection, except a dye control stage by the control and command unit through

the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed.

Darel et al. teaches a printer having a dye control stage by the control and command unit through the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed. See column 5, lines 19-44 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cattaruzza et al. to include a dye control stage, as taught by Darel et al. in order to maintain the process settings at optimum levels.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al.

With respect to claim 31, although Cattaruzza et al. does not explicitly teach that printing takes place at a speed of up to 400 m/min on a sheet of wet or dry non-woven-fabric, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimum speed of the printing is dependent upon a variety of other process factors and can best be determined through routine experimentation.

Response to Arguments

Applicant's arguments filed September 24, 2009 have been considered but they are not persuasive.

In response to applicant's argument that Cattaruzza et al. is not directed to a process of printing on non-woven fabrics, there does not appear to be any structural difference in the apparatus of Cattaruzza et al. and that of applicant's claimed invention and therefore the teachings of Cattaruzza et al. are considered to be directly applicable to the claimed invention.

In response to applicant's argument that the control of the rotational speed does not provide any control of the tensioning forces the material is subjected to, this is not apparent from applicant's claimed process. Although torque is distinct from rotational speed, applicant's disclosed process of controlling the torque entails sending to signals to the motors and thereby changing the rotational speed. Therefore, a change of rotational speed will inherently change the torque. Cattaruzza et al., in column 3, lines 42-49, teaches that a sensor is designed to "transmit to the controller data related to the rotation rate of the central drum in order to control the operation of the electric motor of said drum and synchronize it with the electric motors of each printing unit". Therefore, Cattaruzza et al. does not simply teach control of the rotational speed and control of the torque in the process would inherently be carried out in this prior art process.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571)272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec

/Jill E. Culler/
Primary Examiner, Art Unit 2854